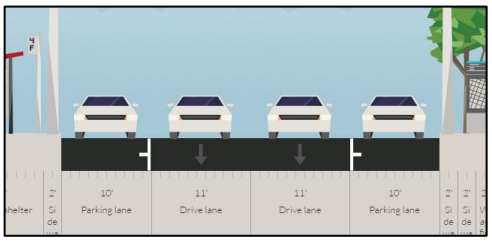
Muhammad Ali and Chestnut

Project Purpose, Scope, Approach, Budget & Timeline

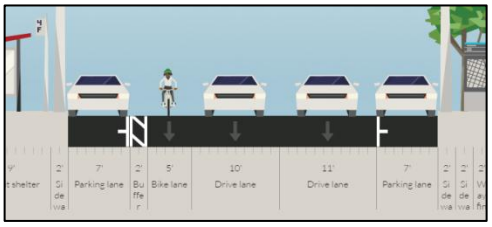
Project Purpose:

The purpose of this project is to continue to build the Urban Bike Network by adding 2 miles of buffered bike lanes to Muhammad Ali and Chestnut Streets between 6th St and 13th St. Moreover, these bike lanes will allow the Vermont Ave Neighborway, which is between 13th and southern pkwy, to connect to downtown. The project will lift the peak hour parking restriction and replace with permanent 7' parking on both sides of the road.



Current typical section

The reconfigured cross-section improves safety by: eliminating conflict points at the intersections, reducing the length of the pedestrian crosswalks and reducing the average vehicle speed within range of the posted speed limit. By removing the peak hour parking restriction will allow for additional pavement width that will be utilized for buffered bike lanes. The buffered bike lanes will provide addition separation from the door zone.

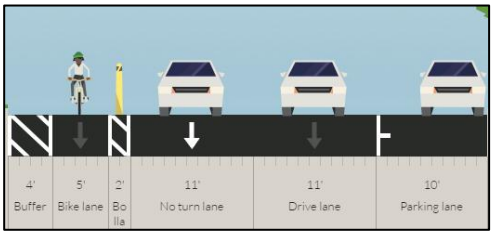


Proposed typical section

Proposed Changes:

The changes to Muhammad Ali and Chestnut Streets being proposed with this plan are as follows:

- Remove the peak hour parking restriction and replace with permanent on-street parking.
- Remark the existing 42' cross section with a: 7' parking lane, 2' buffer, 5' bike lane, 10' drive lane, 11' drive lane and a 7' parking lane.



Proposed typical section for Chestnut St along the Federal Building

- Provide turning lanes where motorists need to cross over the bike lane in order to make their designated turn at the intersections.
- Where there is no parking in front of the Federal Building on Chestnut street this area would be marked with a: 4' buffer, 5' bike lane, 2' buffer with delineator posts, 11' travel lane, 11' travel lane and an 10' parking lane.

Project Funding and Outreach:

This project will be funded thru Mayor Greg Fischer's Urban Bike Network allocation approved in the 2015 Fiscal Year budget. The project cost is estimated at $23,000 for the addition of 2 buffered bike lane miles. The design and engineering for this project is to be provided by the Departments of Public Works & Assets and Codes & Regulations with assistance from Economic Growth & Innovation for the public outreach component. Additional design & public outreach support is also being provided by Downtown Development Cooperation, the local schools and businesses, and District 4 Councilman David Tandy.

Measurements of Effectiveness

Collision Reductions:

To determine the effectiveness of the roadway treatments in improving the collision rates, a comparison of the collision types occurring before and after the improvements will be conducted. The collision history for the last three years will be gathered through the Kentucky State Police's Collision Data website. Queries will be conducted in accordance with the attached *Collision Reporting Guideline* and the data obtained will be ranked by Manner of Collision and Directional Analysis. Each type of collision will then be converted to a specific collision type per vehicle mile traveled using the current traffic volumes for this section of roadway.

Upon completion of the road reconfiguration project, collisions within the boundary of the project will be evaluated monthly for the first 6 months in order to identify any immediate deficiencies. After the first 6 months, collisions will

then be evaluated every 6 months for 3 years. Once the three years of collision history has been gathered, a comparison can be made between the pre- and post-project collision rates to determine effectiveness.
The road reconfiguration should show improvements in the number of sideswipe (same & opposite direction). There should also be modest reductions in rear-end collisions since the total number of conflicts will be reduced. There should also be no increase in the number of cyclist and pedestrian related collisions despite an increase in the total number of users.

Collision Analysis:
The collision history for this section of road was obtained through the Kentucky State Police's public crash analysis website. A query was conducted using the values listed in the attached collision report spreadsheet and the narrative of each report from 2013 was analyzed to determine the type of counter measure that would be best suited to reduce or eliminate each collision.

The predominate type of collision for all 3 years was the ANGLE.

Collision History for: Muhammad Ali between 6th-13th					
					TOTAL
Total Collisions	**0**	**83**	**41**	**54**	**178**
Injury	**0**	**31**	**14**	**33**	**78**
Fatality	**0**	**0**	**0**	**1**	**1**
Manner of Collision	2014	2013	2012	2011	
ANGLE	0	38	18	26	**82**
BACKING	0	2	1	5	**8**
HEAD ON	0	0	1	0	**1**
OPPOSING LEFT TURN	0	0	0	0	**0**
REAR END	0	11	5	10	**26**
REAR TO REAR	0	0	0	0	**0**
SIDESWIPE-OPPOSITE DIRECTION	0	1	0	0	**1**
SIDESWIPE-SAME DIRECTION	0	29	13	6	**48**
SINGLE VEHICLE	0	2	3	6	**11**
INTERSECTION-KARS	0	0	0	0	**0**
OVERTAKING-KARS	0	0	0	0	**0**
RIGHT TURN AWAY FROM APPROACHING VEHICLE	0	0	0	0	**0**
RIGHT TURN INTO APPROACHING VEHICLE-KARS	0	0	0	0	**0**
SIDESWIPE-KARS	0	0	0	0	**0**

Muhammad Ali and Chestnut

Project Purpose, Scope, Approach, Budget & Timeline

Collision History for: Chestnut between 6th-13th					
					TOTAL
Total Collisions	**0**	**0**	**0**	**54**	**54**
Injury	**0**	**0**	**0**	**33**	**33**
Fatality	**0**	**0**	**0**	**1**	**1**
Manner of Collision	2014	2013	2012	2011	
ANGLE	0	0	0	26	**26**
BACKING	0	0	0	5	**5**
HEAD ON	0	0	0	0	**0**
OPPOSING LEFT TURN	0	0	0	0	**0**
REAR END	0	0	0	10	**10**
REAR TO REAR	0	0	0	0	**0**
SIDESWIPE-OPPOSITE DIRECTION	0	0	0	0	**0**
SIDESWIPE-SAME DIRECTION	0	0	0	6	**6**
SINGLE VEHICLE	0	0	0	6	**6**
INTERSECTION-KARS	0	0	0	0	**0**
OVERTAKING-KARS	0	0	0	0	**0**
RIGHT TURN AWAY FROM APPROACHING VEHICLE	0	0	0	0	**0**
RIGHT TURN INTO APPROACHING VEHICLE-KARS	0	0	0	0	**0**
SIDESWIPE-KARS	0	0	0	0	**0**

Traffic Volume & Speed Study:

To determine the effectiveness of the roadway treatments and its impact to the traffic flow and volumes, several pre- and post-project traffic counts will be conducted. Comparisons will be made between the before and after counts to determine the total change in traffic volume utilizing this section of road and the change in the average and 85th percentile speed. The data gathered during the pre-project surveys will also be used to calibrate the traffic simulation models for the project corridor.

Pre-project traffic counts -

Count 1:

Location: Chestnut Street at 9th Street

Equipment: (2) NC-200 Traffic Analyzer

Dates: October 22 at 11:30am to October 24 at 11:30am

Data: This will be a traffic volume and speed count for 48 hours, with one counter in each lane of travel. This count will establish an Average Daily Traffic volume in each lane and the average and 85th percentile speeds.

Results:

East Bound Parking Restriction Lane:

Peak Volume: 63 and **484 ADT** with **30 mph 85th** percentile

East Bound Middle Lane:

Peak Volume: 237 and **2,894 ADT** with **32 mph 85th** percentile

East Bound Outer Lane:

Peak Volume: 347 and **3,790 ADT** with **29 mph 85th** percentile

Combined:

7,168 **ADT** with **30 mph 85th** percentile

Peak volume: **647**

Vehicles from **3:30p to 4:30p**

Muhammad Ali and Chestnut

Project Purpose, Scope, Approach, Budget & Timeline

Count 2:
Location: Muhammad Ali at 9th Street
Equipment: (2) NC-200 Traffic Analyzer
Dates: October 28 at 11:30am to October 30 at 11:30am
Data: This will be a traffic volume and speed count for one week, with one counter in each lane of travel. This count will establish an Average Daily Traffic volume in each lane and the average and 85th percentile speeds.
Results:

West Bound Parking Restriction Lane:
Peak Volume: 265 and **1,117 ADT** with **33 mph 85th** percentile
West Bound Middle Lane:
Peak Volume: 226 and **2,512 ADT** with **34 mph 85th** percentile
West Bound Outer Lane:
Peak Volume: 311 and **2,811 ADT** with **33 mph 85th** percentile
Combined:
6,440 **ADT** with **34 mph 85th** percentile
Peak volume: **802**
Vehicles from **3:30p to 4:30p**

Bike lanes:
To determine the effectiveness of the bike lanes, counts will be conducted before and after the project. This before and after comparison will demonstrate the change in ridership associated with the dedicated bike lanes.
Pneumatic tube counters and Mio-Vision will be placed to gather data on the total number of cyclists traveling in each direction in the corridor. Pneumatic tube count will be at least 1 week and the Mio-Vision count will be for 24 hours. Both counts will be during favorable weather conditions.

Pre-project bicycle counts - TBD
Count 1:
Location:
Equipment: Eco-Combo #2695
Equipment: Mio-Vision
Dates:

Count 2:
Location:
Equipment: Eco-Combo #2695
Equipment: Mio-Vision
Dates:

Post-project counts shall be conducted at the above locations several months after the completion of the project to compare the change in ridership along this section of road. Annual counts will be conducted and the data extracted will be used to establish trends in ridership along Muhammad Ali and Chestnut Streets. Data extracted from future counts will also be used in extrapolating the latent demand that may exist in other areas of the city to aid in the design of future road reconfiguration projects.